

Applicants hereby amend the paragraph on page 5, beginning on line 2 of the specification as follows:

This fourth class of sensor units is a combination of the type with freely programmable algorithms and the type with control algorithms. Sensors of type with programmable regulation algorithms consequently combine the advantages of a sensor unit of the type with freely programmable algorithms and of a sensor unit of the type with control algorithms. Since signal processing is freely programmable, one can compensate the tolerances of a total system, consisting of mechanical components and the actual sensor system. However, as the result of regulation, the output signal Out will react to the instantaneous time behavior of the measurement variable $M(t)$. Conventional sensor systems preferably operate by the latter method. However, a problem with this technique is that changes of the sensor system are no longer compensated, especially of the sensor element, within the lifetime of the sensor unit.

Applicants hereby amend the paragraph on page 10, beginning on line 3 and continuing on page 2 of the specification as follows:

In this example, the analog signal processing unit 27 provides a plurality of signal outputs $A_1, A_2 \dots A_k, A_{k+1} \dots A_K$, which are connected to the analytical unit 40. The digital processing unit 28 also provides a plurality of signal outputs $D_1, D_2 \dots D_n, D_{n+1} \dots D_N$ to the analytical unit 40. The analytical unit 40 also receives a plurality of control signal inputs $S_1 \dots S_i, S_{i+1} \dots S_I$. The operation of the sensor unit 10 shall now be discussed.

Applicants hereby amend the paragraph on page 10, beginning on line 18 and continuing on page 4 of the specification as follows:

It is frequently necessary for this internal voltage signal $U(M)$ on the line 104 to be initially amplified in ~~the~~ amplifier unit 24 to eliminate noisy influences and assure proper signal processing. The amplifier unit provides an amplified signal on a line 106 to the sensor signal processing unit 25.

Applicants hereby amend the paragraph on page 15, beginning on line 14 of the specification as follows:

In this connection, it should be noted that the time which the sensor unit 10 takes to reliably detect the change ~~with~~ is known to the analytical unit 40, so that the changed load I_{load} is also maintained for a sufficiently long time. The signal processing unit and the sensor unit 10 thereupon change the value of the correction quantity ΔU in appropriate fashion. Feedback to the analytical unit 40 is not necessary. In this way, it is possible that the analytical unit initially continues to operate with the changed load current I_2 or I_1 , or - which generally makes more sense - operates with the lowest load current I_0 . The analytical unit 40 will now analyze further whether the change was sufficient. If another change should be required, the analytical unit 40 again requests this change. A change preferably is effected with the smallest possible increment.